

# NEUBURG SILICEOUS EARTH IN WATERBORNE 2 C EPOXY CLEAR COATS: OPTIMIZATION OF CORROSION PROTECTION

## OBJECTIVE

Can Neuburg Siliceous Earth be used as an anti corrosion filler in a clear coat to meet the requirement profile?

Neuburg Siliceous Earth:

**Sillitin Z 89, Silfit Z 91,  
Aktisil AM, TP 2008037**

## FORMULATION

		Control	Sillitin Z 89 15 pbw	Silfit Z 91 15 pbw	Aktisil AM 15 pbw	Aktisil AM 25 pbw	TP 2008037 25 pbw
A-Component	BECKOCURE™ EH 2260w/41WA *1 (Amine hardener)	55	48.45	48.45	48.45	44.90	44.90
	Neuburg Siliceous Earth	-	11.90	11.90	11.90	18.37	18.37
B-Component	BECKOPOX™ EP 147w *1 (Epoxy resin)	11.25	9.91	9.91	9.91	9.18	9.18
	BECKOPOX™ EP 386w/52WA *1 (Epoxy resin)	33.75	29.74	29.74	29.74	27.55	27.55
<b>Total [%]</b>		100	100	100	100	100	100
Solids content [%]		51.4	57.1	57.1	57.1	60.3	60.3
PVC [%]		0	9.9	9.9	9.9	15.5	15.5

Substrate: Gardobond F (aluminum) and Gardobond OC (steel), both without pre-treatment  
Drying: 30 min at 60 °C and 7 days at 23 °C / 50 % relative humidity  
Dry film thickness: 50 - 80 µm

\*1 <http://allnex.com/the-easy-cure-system>

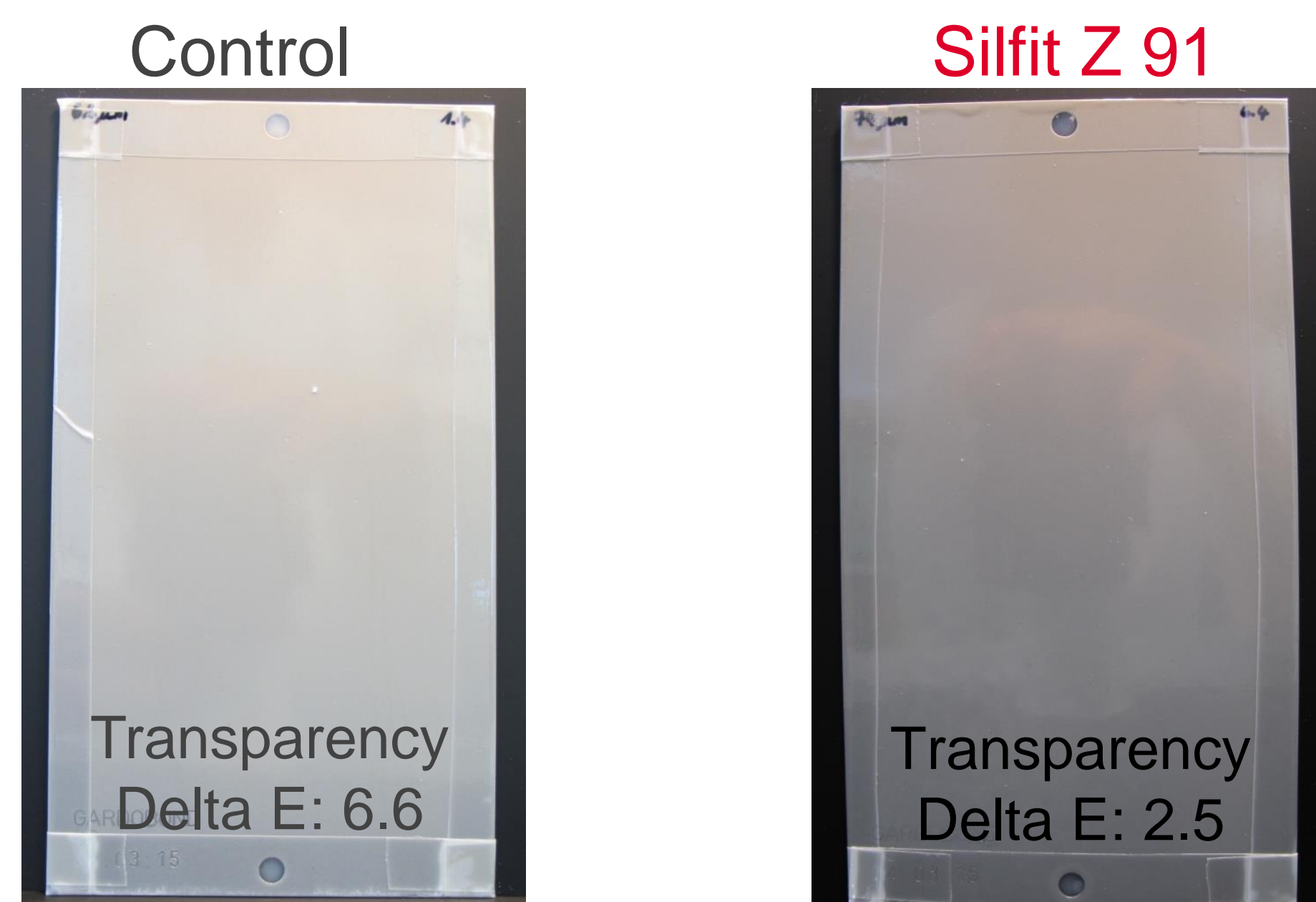


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## RESULTS

### Humidity Test 240 h

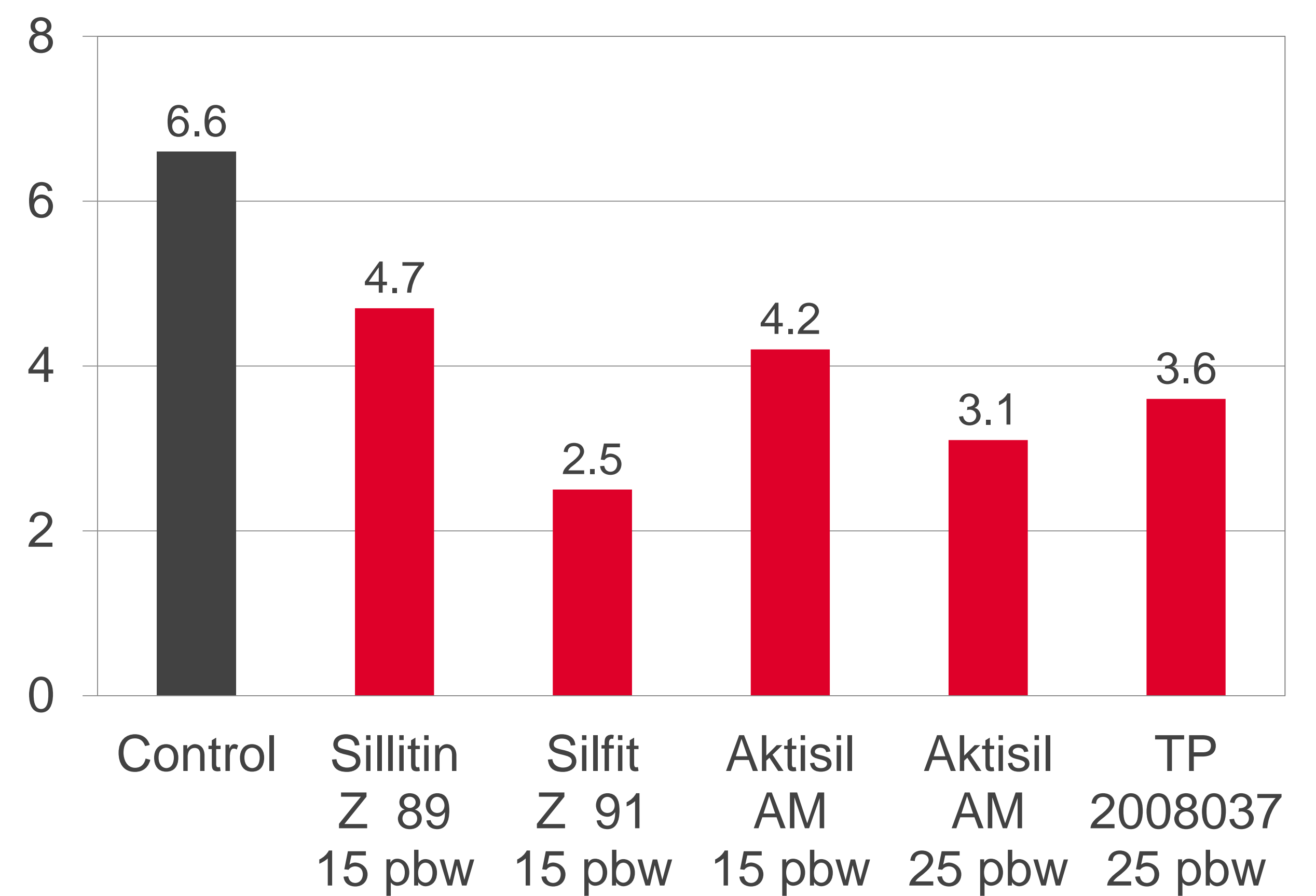
On both substrates: no blistering or rusting



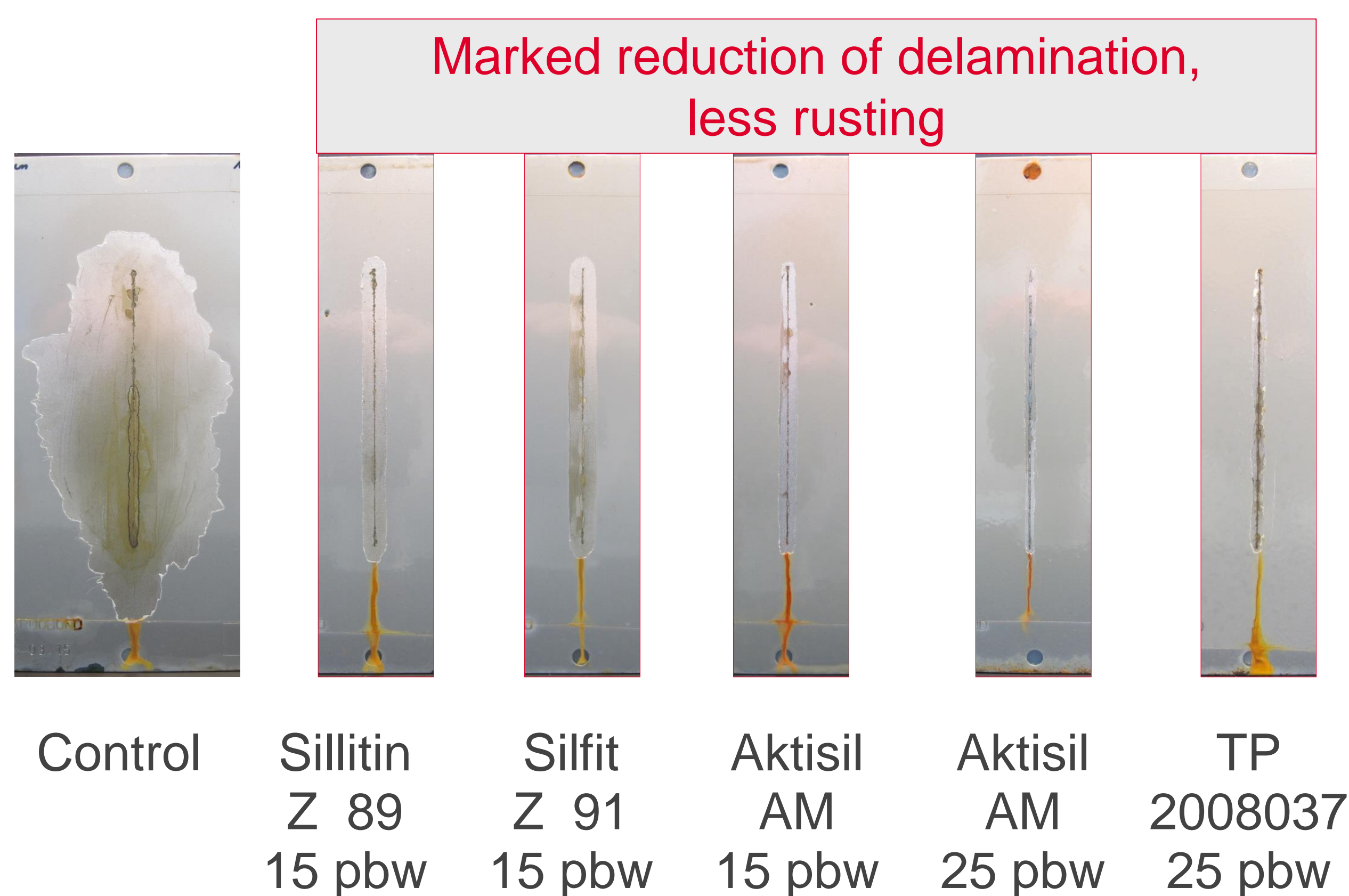
Strong milky blushing, marked negative impact to transparency

Significant Improvement

### Humidity Test 240 h Transparency Delta E (on steel)

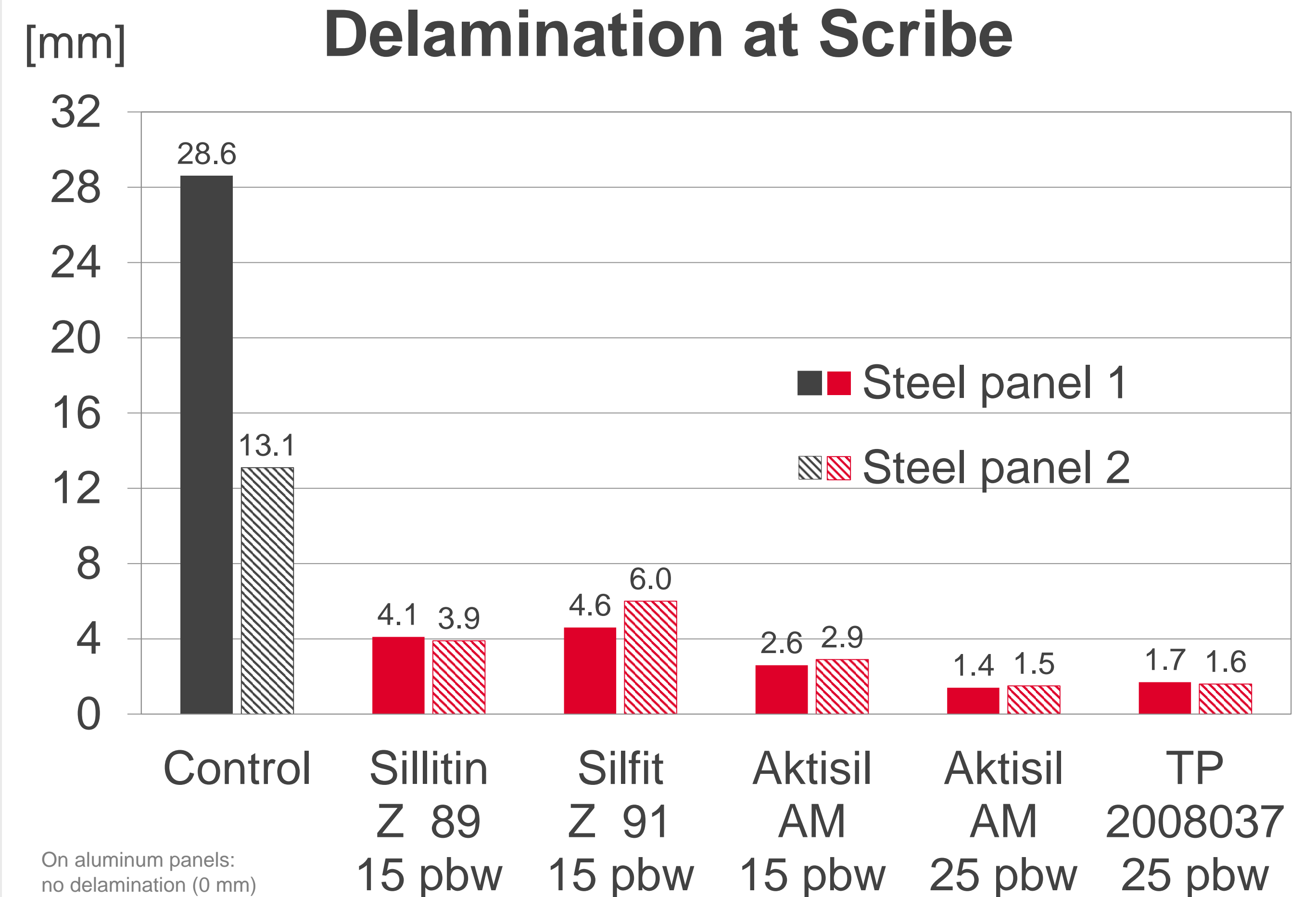


### Salt Spray Test 240 h Delamination at Scribe (on steel)



Marked reduction of delamination, less rusting

### Salt Spray Test 240 h Delamination at Scribe



## SUMMARY

### Retained Features

- ✓ Transparency and color neutrality
- ✓ High gloss (60°: > ~ 80)
- ✓ Excellent adhesion (GT 0-1)
- ✓ Good flexibility (cupping test 6-8 mm)

### Improved Features

- + Best price/performance ratio (especially by using Sillitin Z 89)
- + No milky blushing and maintaining transparency and color neutrality after exposure to humidity (especially by using Silfit Z 91 with 15 pbw)
- + Significant improvement of corrosion resistance: marked reduction of delamination, less rusting (especially by using Aktisil AM or TP 2008037 with 25 pbw)